(b) Solve the set. $\frac{1}{x}\left(\frac{3}{z} - \frac{4}{y} + \frac{7}{y_2}\right) + \frac{2}{y_2} = \frac{1}{y}\left(\frac{3}{x}\right)$ $-\frac{4}{z}-\frac{1y}{zx}+\frac{2}{xz}=\frac{1}{z}\left(-\frac{3}{y}-\frac{4}{x}\right)$ $\frac{3}{xy}\right) + \frac{2}{xy} = 0$ 6. (a). $lb_1 + m b_3 + n b_3 = 0$ $lc_1 + mc_2 + nc_3 = 0$ Divide throughout by m. Thus : $\frac{lb_1}{m} + \frac{nb_2}{m} = -b_2$ $\frac{lc_1}{m} + \frac{n}{m}c_3 = -c_2$... Eliminating n $\frac{l}{m}(b_1 c_3 - b_3 c_1) = -(b_2 c_3 - b_3 c_2)$ $\frac{1}{b_{2} c_{3} - b_{3} c_{2}} = \frac{m}{b_{3} c_{1} - b_{1} c_{2}} = \frac{m}{b_{1} c_{1} - b_{1} c_{2}} = \frac{m}{b_{1} c_{2} - b_{2} c_{2}}$ by symmetry. (b). Multiply throughout by xyz. Then 2x + 3y - 42 = -7-4x + 2y + 32 = 193x - 4y + 22 = 3Multiply the first line by 16, the second by 10, and the third by 17 and we obtain 43 x = 129 or x = 3Thence, y = 5 and z = 7

7. (a) Show that if two quadratics in two variables have a common factor in the parts involving the variables, the set can be solved as a quadratic.

(b) Solve the set :

 $x^{3} + xy - 2y^{3} + x + 2y = 66$, and $3x^{2} - 4xy + y^{2} + 3x - y = 114$.

7. (a) Let C be the common linear factor, and A and B be the other linear factor. The equations are A C = m, B C n, where m and n are numerical constants.

Dividing,
$$\frac{AC}{BC} = \frac{A}{B} = \frac{m}{n} \therefore A = \frac{m}{n}B.$$

And since A and B are both linear, A is found in terms of B, and by substituting this value for A, we have a single quadratic equation.

(b). Here we have

(x + 2 y) (x - y + 1) = 66(3x - y) (x - y + 1) = 114 $\therefore \frac{x + 2y}{3x - y} = \frac{66}{114} = \frac{11}{19}, \quad \therefore y = \frac{2}{7} x$

Substituting in the first,

 $(x + \frac{4}{7}x)(x - \frac{2}{7}x + 1) = 60$ Whence x = 7 or $-8\frac{2}{5}$ And thence, y = 2 or $-1\frac{1}{5}$.

CONTEMPORARY LITERATURE.

The cool green and white on the summer number of the *Century* is only less attractive than the contents. The frontispiece is a fine portrait of Phillips Brooks. There is also a collection of his letters to children. The art element is strongly represented, "Contemporary Art in Japan," following one of John le Farge's "Artist's Letters from Japan." Mrs Catherwood's story reaches its third part. There are a number of good short stories by such writers as Grace King, Alice Brown, and Edward Eggleston.

Littell's Living Age for July 29 contains the conclusion of the article "English Whist and Whist Players" from *Temple Bar*. The opening article is on "St. William of Norwich," by Augustus Jessop, and is from the Nineteenth Century. The stories are from Macmillan's and Belgravia.

Perhaps the most interesting article in the August *Atlantic* is on the "First Principal of Newnham College," by Eugenia Skelding. As befits a summer number, the quality of the magazine is somewhat lighter than usual, there being three short stories, by Ellen Olney Kirk, Edith M. Thomas, and A. M. Ewell, besides the third and fourth instalments of "His Vanished Star,"

278